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10/532,049	04/21/2005	Yoshihiro Ohtani	1248-0778PUS1	6180
2292	7590	12/14/2007	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			CEHIC, KENAN	
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NOTIFICATION DATE		DELIVERY MODE		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/532,049	OHTANI, YOSHIHIRO	
Examiner	Art Unit		
Kenan Cehic	2616		

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 21 April 2005.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 29-63 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) 30,31,33 is/are allowed.

6)  Claim(s) 29,32 and 34-63 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)  All   b)  Some \* c)  None of:

1.  Certified copies of the priority documents have been received.
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 04/21/2005.

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.  
5)  Notice of Informal Patent Application  
6)  Other: \_\_\_\_.

**DETAILED ACTION**

***Specification***

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
3. The abstract of the disclosure is objected to because the abstract is not descriptive and it references/describes a Figure in the specification. Correction is required. See MPEP § 608.01(b).
4. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

***Claim Objections***

5. Claim 31 is objected to because of the following informalities:

For claim 31, the limitation "Tboud" in line 8, seems to refer to "Tbound".

For claim 37, there is not need for the quotation marks. Similar problems exist in claim 44, 46.

For claim 37, the limitation "communication station side" seems to refer back to claim 36 line 3. If this is true it is suggested to change this limitation to --said communication station side--.

For claim 41, the limitation "T delay" and "a maximum tolerable delay time of the data to be transmitted" seems to refer back to claim 29 line 14. If this is true it is suggested to change this limitation to --said T delay – and –said maximum tolerable delay time of the data to be transmitted—. Similar problems exist in claim 42 line 4-5 for "a maximum tolerable delay time of the data to be transmitted".

For claim 42, the limitation "delay" seems to refer back to "T delay" in claim 42 line 3. If this is true it is suggested to change this limitation to --said T delay--.

For claim 45, the limitation "a central control station" in line 2 seems to refer back to claim 29 line 2. If this is true it is suggested to change this limitation to --said central control station --. Similar problems exist in claim 47 line 3.

For claim 47, the limitation “a communication station” in line 15 seems to refer back to claim 47 line 4. If this is true it is suggested to change this limitation to -- said communication station --.

Appropriate correction is required.

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 62,63 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

For claims 62, the claim limitation “A communication managing program causing a computer to execute the steps” in line 1, is not a process, machine, manufacture, or composition of matter, or any new and useful improvement thereof because there is no physical structure/connection of medium recited in the claims. To overcome this rejection, it is suggested to change “carrier medium” to -- computer readable medium encoded with computer executable instructions --.

For claims 63, the claim limitation “A computer-readable recording medium storing a program for managing communication, where in the computer-readable recording medium stores the program” in line 1, is not a process, machine, manufacture, or composition of matter, or any new and useful improvement thereof because there is no physical structure/connection of medium recited in the claims. To overcome this

rejection, it is suggested to change “carrier medium” to - - computer readable medium encoded with computer executable instructions - -.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 29,32, 34-63 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For claim 29, for the variable “t” in lines 9,10 there is no definition or any limiting bounds for the variable. Similar problems exist in claim 33 line 10, 11,

For claim 32, the variable “Tbound” in line 14 is not defined.

For claim 44, the limitation “the communication station” lacks antecedent basis. It is not clear which communication station the applicant is referring to. Similar problems exist in claim 46 line 2, 4; claim 48 line 16, claim 50 line 6.

For claim 45-48, 60, 61 the meets and bounds of the claims are not met/clear. The attempt for dependency on claim 29 is improper.

For claim 49, the limitation “said one communication station” line 7 lacks antecedent basis. It is not clear which communication station the applicant is referring to.

Dependent claims are rejected because they depend on rejected claims.

*Allowable Subject Matter*

8. Claims 30, 31, 33 are allowed.

For claim 30, the prior art fails to disclose causing the central control station to carry out the scheduling, by using parameters C and Tbound, so that a sum of transmission right granted time

periods actually granted in a time period {tl, t2} is always equal to or more than  $C \cdot (t2 - T \text{ bound}) - tl$  } where tl and t2 are arbitrary time points (tl t2), C is an average rate of change of the sum of the transmission right granted time periods allocated, to the communication station that is to transmit the data, by the central control station according to a reference transmission right allocation, and T delay is a maximum tolerable delay time of the data to be transmitted by the communication station that is to transmit the data, C and T bound satisfying following formulae:

Formula 1  $0 < T \text{ bound} < T \text{ delay}$

Formula 2:  $0 < C < 1$

The closest prior art, Pavon et al (US 2006/0052088) teaches a similar expression of C however the it is not used in the same context nor in the same formula. Additionally the bounds of the parameters are not set as claimed.

For claim 31, prior art fails to disclose causing the central control station to carry out the scheduling, by using a parameter Tboud and based on information concerning a traffic

property of the data or a polling request, so that a sum of transmission right granted time periods actually granted in a time period  $\{t_1, t_2\}$  is a value equal to or more than a value of a time period necessary for transmitting MSDUs arriving in a time period  $(t_1, t_2 - T \text{ bound})$ , where  $t_1$  and  $t_2$  are arbitrary time points  $(t_1 \leq t_2)$ , and  $T$  delay is a tolerable maximum delay time (Delay bound) of the data to be transmitted by said one communication station,  $T$  bound satisfying a following formula:

Formula 1:  $0 < T \text{ bound} < T \text{ delay}$

The closest prior art, Pavon et al (US 2006/0052088) teaches the delay bound and a transmitting periods (TXOP), however it fails to disclose that sum of transmission right granted time periods actually granted in a time period  $\{t_1, t_2\}$  is a value equal to or more than a value of a time period necessary for transmitting MSDUs arriving in a time period  $(t_1, t_2 - T \text{ bound})$ .

For claim 31, prior art fails to disclose causing the central control station to carry out the scheduling, by using parameters  $C$ , TXOP1 bound,  $T_1$  bound, TXOP2 bound, and  $T_2$  bound, so that a sum of transmission right granted time periods actually granted in a time period  $\{t_0, t_0 + t\}$  is always equal to or more than  $C \cdot t - \text{TXOP1 bound}$  and equal to or less than  $C \cdot t + \text{TXOP2 bound}$  where  $t_0$  is an arbitrary time point,  $C$  is an average ratio of the sum of the transmission right granted time periods allocated, to the communication station that is to transmit the data, by the

central control station according to a reference transmission right allocation, and T delay is a maximum tolerable delay time of the data to be transmitted by the communication station that is to transmit the data, C, TXOP1 bound, T1 bound, TXOP2 bound, and T2 bound satisfying the following formulas:

Formula 4:  $0 < T1 \text{ bound} < T \text{ delay}$ ,  $0 < T2 \text{ bound}$

Formula 5:  $0 < C < 1$

Formula 6:  $\text{TXOP1 bound} = C * T1 \text{ bound}$

$\text{TXOP2 bound} = C * T2 \text{ bound}$

The closest prior art, Pavon et al (US 2006/0052088) teaches a similar expression of C however the it is not used in the same context nor in the same formula. Additionally the bounds of the parameters are not set as claimed.

9. Claims 29,32, 34-63 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action. Additionally, the objections set forth in the office action need to be addressed.

For claim 29, the prior art fails to discloses causing the central control station to carry out the scheduling, by using parameters C, TXOP bound, and T bound, so that a sum of transmission right granted time periods actually granted in a time period  $\{tO, tO + t\}$  is always equal to or more than  $C - \text{TXOP bound}$  where  $tO$  is an arbitrary time point, C is an average ratio of the sum of the transmission right granted time periods allocated, to the communication station that is to transmit the data, by the central control station according to a reference transmission right allocation, and T delay is a maximum tolerable delay

time of the data to be transmitted by the communication station that is to transmit the data, C, TXOP bound, and T bound satisfying following formulas:

Formula 1:  $0 < T \text{ bound} < T \text{ delay}$

Formula 2:  $0 < C < 1$

Formula 3:

$\text{TXOP bound} = C * T \text{ bound}$ .

The closest prior art, Pavon et al (US 2006/0052088) teaches a similar expression of C however the it is not used in the same context nor in the same formula. Additionally the bounds of the parameters are not set as claimed.

For claim 49, prior art fails to disclose causing said one communication station to derive n by a following formula using a packet error rate PER and a packet loss rate of a communication

path:  $n = \text{ceiling} \{ \log(\text{PLR}) / \log(\text{PER}) \}$

where n is a desirable maximum number of times transmission is able to be carried out; and

notifying the central control station that a time period equal to or less than a time period obtained by dividing, by n, a value of an tolerable transmission delay time T delay is "a maximum time interval between two successive times at which polling is desired".

The closest prior art, Allain et al (US 6,449259) discloses that QOS is dependent on PER and PLR however the exact expression is not taught. The closest prior art, Pavon et al (US 2006/0052088) disclose the delay bound, however the maximum interval between tow successive time at which polling is desired is not disclosed.

***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US-6,449,259 B1	09-2002	Allain et al.	370/253
US-2003/0063563 A1	04-2003	Kowalski, John M.	370/230
US-2003/0223365 A1	12-2003	Kowalski, John M.	370/230.1
US-2004/0073939 A1	04-2004	Ayyagari, Deepak	725/110
US-2006/0052088 A1	03-2006	Pavon et al.	455/414.1

The above are referenced to show system/methods of granting transmitting times in wireless communications.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenan Cehic whose telephone number is (571) 270-3120. The examiner can normally be reached on Monday through Friday 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KC

KWANG BIN YAO  
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read "Kwang Bin Yao".